

## NASA SBIR/STTR Technologies

### High Efficiency, High Output PMWC (HEHO-PMWC)



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Proposal No: X2.02-9461

#### Identification and Significance of Innovation

The primary innovations of the HEHO-PMWC are:

1. Design and material selection minimize thermal energy losses and operational time between processed batches
2. Square chamber design creates more useful 16" square tile byproducts for possible radiation shielding
3. Innovative chamber actuating mechanism reduces volume
4. Chamber and chamber door design and use of surface treatments maximize accessibility and maintainability
5. Use of surface treatments and other design considerations allow the HEHO-PMWC to process brines

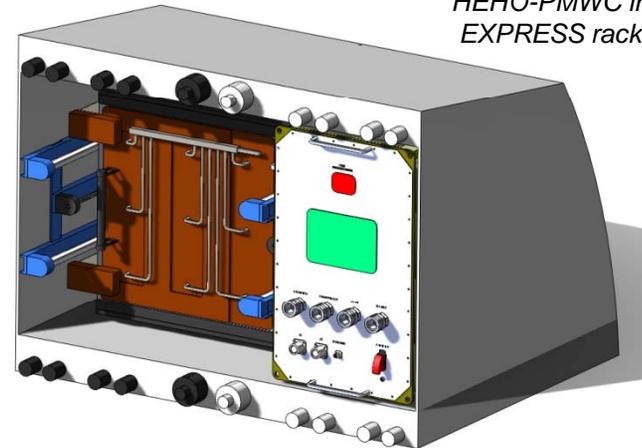
Expected TRL Range (1-9) at beginning and end of contract: 5/6

#### Technical Objectives and Work Plan

The Phase II effort will build upon positive results of Phase I effort to fabricate and test a full-scale prototype HEHO-PMWC.

The following tasks will be conducted to achieve the technical objectives:

1. Ersatz Investigation
2. Trash Collection and Containment Trade Study
3. Prototype Compactor Development
4. Prototype Design Options Trade Study
5. Prototype Subsystem Development
6. Prototype System Integration and Test
7. Prototype Chemical and Biological Evaluation
8. VOC Removal Investigation
9. Management and Reporting



HEHO-PMWC in  
EXPRESS rack

#### NASA Applications

The HEHO-PMWC is a critical component for high volume reduction and water recovery for long-duration manned space exploration trash management.

#### Non-NASA Applications

The HEHO-PWMC will also play the same critical role for commercial aerospace companies with all the same benefits. Additionally, the square tiles could be easily used for radiation protection inside inflatable habitats.

#### Contacts

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**NON-PROPRIETARY DATA**